



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
Northwest Region  
7600 Sand Point Way N.E., Bldg. 1  
Seattle, WA 98115

Refer to:  
OSB2000-0291

January 10, 2001

Mr. Lawrence C. Evans  
U.S. Army Corps of Engineers  
Attn: Teena Monical  
Operations Division, CENWP-OP-GP  
P.O. Box 2946  
Portland, Oregon 97208-2946

Re: Formal Section 7 Consultation and Essential Fish Habitat Consultation, Lloyd Property Bank  
Stabilization on Pacific City Slough, Tillamook County, Oregon (Corps No. 2000-00645)

Dear Mr. Evans:

Enclosed is a biological opinion (Opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act (ESA) for the Lloyd Property Bank Stabilization Project on Pacific City Slough, Tillamook County, Oregon. The NMFS concludes in this Opinion that the proposed action is not likely to jeopardize Oregon Coast coho salmon (*Oncorhynchus kisutch*) or destroy or adversely modify critical habitat. Pursuant to section 7 of the ESA, NMFS has included reasonable and prudent measures with non-discretionary terms and conditions that NMFS believes are necessary and appropriate to minimize the potential for incidental take associated with this project.

This Opinion also serves as consultation on Essential Fish Habitat pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and its implementing regulations (50 CFR Part 600).

Questions regarding this letter should be directed to Rob Markle of my staff in the Oregon State Branch Office at (503) 230-5419.

Sincerely,

*Michael R. Cause*

Donna Darm  
Acting Regional Administrator



Endangered Species Act Section 7 Consultation  
**Biological Opinion**  
&  
Magnuson-Stevens Act  
Essential Fish Habitat Consultation

Lloyd Property Bank Stabilization on Pacific City Slough, Corps No. 2000-00645  
Tillamook County, Oregon

Agency: U.S. Army Corps of Engineers, Portland District

Consultation Conducted By: National Marine Fisheries Service,  
Northwest Region

Date Issued: January 10, 2001

**Refer to:** OSB2000-0291

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## **1. BACKGROUND**

The U.S. Army Corps of Engineers (Corps) requested formal consultation on a proposed bank stabilization action on Pacific City Slough in a letter dated October 27, 2000. NMFS received the request for consultation and a biological assessment describing the proposed action on October 30, 2000. Ms. Catherine Lloyd is the applicant for the subject permit.

The proposed action site is located on Pacific City Slough approximately 300 yards upstream of the lower Nestucca River (approximately river mile 0.4). Active bank failure and channel widening have occurred in recent years. The affected bankline is sloughing and threatens loss of the residential structure on-site. Cracking of the soil surface is evident approximately 15 feet behind the edge of channel. Bank soil and slough substrate are composed of fine/sand material. Loss is believed due to a combination of high water events, high-amplitude tidal cycles, and the hardening of adjacent banks. The upstream bank is armored with 1-foot minus rock, while downstream the Booten Road Bridge abutments, a Tillamook County structure, were recently armored with 1- to 2-foot rock. The slough experiences some small boat traffic. The top of bank is manicured lawn with blackberry bushes and approximately 25 alder trees. The opposite bank appears undisturbed and is well vegetated.

This biological opinion (Opinion) considers the potential effects of the proposed action on Oregon Coast (OC) coho salmon (*Oncorhynchus kisutch*), which occur in the proposed project area. OC coho salmon were listed as threatened under the Endangered Species Act (ESA) on August 10, 1998 (63 FR 42587), critical habitat was designated on February 16, 2000 (65 FR 7764) and protective regulations were issued on July 10, 2000 (65 FR 42423). The objective of this Opinion is to determine whether the proposed action is likely to jeopardize the continued existence of OC coho salmon, or destroy or adversely modify designated critical habitat for this species. This consultation is conducted pursuant to section 7(a)(2) of the ESA and its implementing regulations, 50 CFR 402.

## **2. PROPOSED ACTION**

The action proposes to place 200 cubic yards of 1- to 2-foot diameter rock along a 150 foot section of bank at a 1:1.5 (vertical:horizontal) slope. A toe trench would be excavated in the streambed to key in the rock. Rock would ascend the embankment to within one to two feet of the edge of bank, measured vertically. Pit-run rock would be placed as base for the rock face. Approximately seven alder trees will be removed. Native vegetation would be planted within and above the riprap slope including willow posts and brushlayering. Native trees and shrubs will be planted in a strip ten feet wide paralleling the top of bank. All work is proposed to occur during the summer of 2001 (July 1-September 15).

## **3. BIOLOGICAL INFORMATION AND CRITICAL HABITAT**

Although there are currently limited data to assess population numbers or trends, NMFS believes that all coho salmon stocks comprising the OC coho salmon ESU are depressed relative to past abundance. The status and relevant biological information concerning OC coho salmon are well described in the

proposed and final rules from the Federal Register (July 25, 1995, 60 FR 38011; and May 6, 1997, 62 FR 24588, respectively), and Weitkamp *et al.* (1995).

Abundance of wild coho salmon spawners in Oregon coastal streams declined during the period from about 1965 to roughly 1975 and has fluctuated at a low level since that time (Nickelson *et al.* 1992). Spawning escapements for this ESU may be at less than 5% of abundance from that in the early 1900s. Contemporary production of coho salmon may be less than 10% of the historic production (Nickelson *et al.* 1992). Average spawner abundance has been relatively constant since the late 1970s, but preharvest abundance has declined. Average recruits-per-spawner may also be declining. The OC coho salmon ESU, although not at immediate danger of extinction, may become endangered in the future if present trends continue (Weitkamp *et al.* 1995).

Timing of adult coho salmon river entry is largely influenced by river flow. Coho salmon normally wait for freshets before entering rivers. In the Nestucca River watershed, adults return between September and January (C. Knutsen, ODFW, personal communication, 29 June 2000) with peak upstream migration usually occurring in October when the fall rains return (Weitkamp *et al.* 1995). OC coho salmon spawn in the Nestucca River basin between mid-November and mid-December with peak spawning occurring in late-November to early-December (Weitkamp *et al.* 1995). Juvenile coho salmon rear for one year in fresh water before migrating to the ocean. Juvenile OC coho salmon migrate out of the Nestucca River basin as smolts between March and May (C. Knutsen, ODFW, personal communication, 29 June 2000). Peak outmigration typically occurs in late-April or early-May (Weitkamp *et al.* 1995). The subject waterway is quite small and not believed to contain any coho salmon spawning habitat; however, the waterway likely provides rearing and refuge habitat.

Critical habitat for OC coho salmon includes Oregon coastal river basins (freshwater and estuarine areas) between Cape Blanco and the Columbia River. Freshwater critical habitat includes all waterways, substrates, and adjacent riparian areas—areas adjacent to a stream that provides the following functions: shade, sediment, nutrient or chemical regulation, streambank stability, and input of large woody debris or organic matter—below longstanding, natural impassable barriers (i.e., natural waterfalls in existence for at least several hundred years) and several dams that block access to former coho salmon habitat. The proposed action would occur in designated critical habitat for OC coho salmon.

#### **4. EVALUATING PROPOSED ACTIONS**

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). In conducting analyses of habitat-altering actions under section 7 of the ESA, the NMFS uses the following steps: 1) Consider the status and biological requirements of the species; 2) evaluate the relevance of the environmental baseline in the action area to the species' current status; 3) determine the effects of the proposed or continuing action on the species; 4) consider cumulative effects; and 5) determine whether the proposed action, in light of the above factors, is likely to appreciably reduce the likelihood of species survival in the wild or adversely modify its critical habitat. In completing this step of the analysis, NMFS determines whether the action under consultation, together with all cumulative effects when added to the environmental baseline, is likely to jeopardize the continued existence of the listed species or result in destruction, adversely modify their

critical habitat, or both. If NMFS finds that the action is likely to jeopardize the listed species, NMFS must identify reasonable and prudent alternatives for the action.

#### **4.1. Biological Requirements**

The first step in the methods NMFS uses for applying the ESA section 7(a)(2) to listed salmon is to define the biological requirements of the species most relevant to each consultation. NMFS also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NMFS starts with the determinations made in its decision to list OC coho salmon for ESA protection and also considers new data available that are relevant to the determination (Weitkamp *et al.* 1995).

The relevant biological requirements are those necessary for OC coho salmon to survive and recover to naturally reproducing population levels at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful rearing and migration. The current status of the OC coho salmon, based upon their risk of extinction, has not significantly improved since the species was listed and, in some cases, their status may have worsened.

#### **4.2. Environmental Baseline**

The environmental baseline is an analysis of the effects of past and on-going human and natural factors leading to the current status of the species or its habitat and ecosystem within the action area. The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). Direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect effects may occur throughout the watershed where actions described in this Opinion lead to additional activities or affect ecological functions contributing to stream degradation. The action area is defined as that bankline, adjacent riparian zone, and aquatic area affected by the proposed action. For this consultation, the action area includes the Pacific City Slough in its entirety from the project site downstream to the Nestucca Bay and upstream to the extent of tide influence.

The bulk of production for the OC coho salmon ESU is skewed to its southern portion where the coastal lake systems (e.g. Tenmile, Tahkenitch, and Siltcoos Basins) and the Coos and Coquille Rivers are more productive. The proposed action area is located in the northern half of the ESU where production is more depressed and habitat in the action area is underseeded. OC coho salmon spawn in the Nestucca River and likely utilize the Pacific City Slough for rearing and high-flow refugia.

Pacific City is a small coastal town 30 miles south of Tillamook, Oregon. Pacific City Slough drains small portion of land between Booten Mountain and the Nestucca River. The watershed is believed to be less than one square mile and consists of agriculture, forest, and residential lands. The Pacific City

Slough/Nestucca River confluence is located approximately 300 yards downstream at river-mile 0.4 of the Nestucca River. Winters are typified as mild and wet, while summers are cool and relatively dry.

The Pacific City Slough does not appear on the Oregon Department of Environmental Quality (ODEQ) 303(d) List of Water Quality Limited Water Bodies. However, the Nestucca River from its mouth to Powder Creek is listed as temperature limited (summer) and for flow modification (ODEQ 2000). In 1994, the seven day average of daily maximum temperatures exceeded the standard (64°F) throughout this reach. Historic readings at Beaver Creek indicate temperature exceedences occurring in 1983, 1984 and 1985. Instream Water Rights measured at the USGS gage located near the town of Beaver, are often not satisfied (ODEQ 2000). Stream flow reductions have been identified as a contributing factor to coho salmon declines.

## **5. ANALYSIS OF EFFECTS**

### **5.1 Effects of Proposed Actions**

Rivers are dynamic systems that perpetually alter their courses in response to multiple physical criteria. Residences and other structures constructed along waterways are subject to flooding and undercutting as a result of these natural changes in stream course. Structural embankment hardening has been a typical means of protection for structures located along waterways. Impacts to waterways from revetment installation are simplification of stream channels, alteration of hydraulic processes, and prevention of natural channel adjustments (Spence *et al.* 1996). Moreover, embankment hardening may shift the erosion point either upstream or downstream of the subject site and contribute to stream velocity acceleration. As erosive forces impact different locations and bank hardening occurs in response, the river eventually attains a continuous fixed alignment lacking habitat complexity (COE 1977).

Fish habitat is enhanced by the diversity of habitat at the land-water interface and adjacent bank (COE 1977). Streamside vegetation provides shade which reduces water temperature. Overhanging branches provide cover from predators. Organisms that fall from overhanging branches may be preyed upon by fish. Immersed vegetation, logs, and root wads provide points of attachment for aquatic prey organisms, shelter from swift currents during high flow events, and retain bed load materials.

The most desirable method of bank protection is revegetation. However, revegetation alone can seldom stabilize banks steeper than 3:1 (vertical:horizontal) or areas of high velocity (COE 1977). Although biologically less desirable, fixed structures provide the most reliable means of bank stability. The use of structural measures should be a last resort. Combining structural measures (i.e. sloped riprap or mechanically stabilized earth walls) and vegetation is preferable to an unvegetated structural solution. The least preferable alternative is a vertical bulkhead (COE 1977).

The proposed action is replacement of 150 feet of a natural 10-foot vertical cut bank with a vegetated rock slope. All work is proposed to occur from the top of bank. Toe trench excavation and rock placed at the toe may occur in the wet. If excavation occurs in the wet, sediment can be expected to become suspended and transported upstream or downstream, depending on tide cycle. Furthermore, fill materials placed at the base of the existing bank and soils exposed while pulling back the bank could

be carried into the slough during a rain event. An increase in turbidity could impact fish and filter-feeding macro-invertebrates downstream of the work site.

To minimize the potential for stream turbidity and direct impacts to fish, work would occur during the summer of 2001 (July 1 to September 15). During this period, river flows are typically low, fish presence is reduced, and rainfall is minimal. Low flows would allow a majority of the work to occur in the dry, thereby reducing indirect (turbidity) and direct impacts to fish. Fish presence is minimal with rearing juveniles potentially present, but no adult spawning or egg incubation occurring. The low probability of rainfall reduces the likelihood that sediment would be transported into the river. Based on data provided by the Western Regional Climate Center (2000) for Cloverdale, average rainfall during the work period represents 5.2 percent of the annual with less than a 10 percent probability of receiving 0.5 inches of rainfall on any given day. The precipitation probability increases greatly after mid-September, as does the potential presence of returning adult coho salmon.

As with all construction activities, there is potential for accidental release of fuel, oil, and other contaminants to the waterway. To minimize this potential, no equipment would enter below the break in bank or the ordinary high water elevation. All equipment would work from above the bankline and would be serviced away from any water bodies. Best Management Practices (BMPs) required by the Corps and/or the State of Oregon would further minimize the potential for accidental release of hazardous materials.

## **5.2. Effects on Critical Habitat**

The NMFS designates critical habitat based on physical and biological features that are essential to the listed species. Essential features of designated critical habitat include substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage. The proposed action area would occur within designated critical habitat for OC coho salmon.

The presence of the Lloyd residence and other bank development in the area affects critical habitat in the long-term by restricting natural channel forming processes, altering stream hydrology, reducing riparian vegetation, increasing stream temperature, and reducing allochthonous input. In addition, Peters *et al.* (1998) found that densities of juvenile coho salmon were generally reduced at riprapped sites when compared to areas containing large woody debris or undercut banks. Willows planted within and upslope of the riprap may provide limited shade, cover, and allochthonous input in the long-term. Trees planted along top of slope should further aid in mitigating the loss of a dynamic natural bank.

Short-term impacts resulting from the proposed action could occur from turbidity and debris contribution to the waterway during construction activities and storm events during construction. These effects would be largely ameliorated by project timing (i.e., dry season) as described above in *Effects of Proposed Action*.

While the proposed project will alter the existing bank length by removing some vegetation and limiting lateral channel movement, beneficial aspects include removal of a sediment source and reestablishment of some riparian vegetation. These aspects would serve to reduce stream turbidity and offer some restoration of riparian function to the embankment.



### **5.3. Cumulative Effects**

Cumulative effects are defined in 50 CFR 402.02 as those effects of "future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." Future Federal actions, including the ongoing operation of hydropower systems, hatcheries, fisheries, and land management activities are being (or have been) reviewed through separate section 7 consultation processes. Therefore, these actions are not considered cumulative to the proposed action.

The NMFS is not aware of any specific future non-Federal activities within the action area that would cause greater impacts to listed species than presently occurs. The NMFS assumes that future private and state actions will continue at similar intensities as in recent years.

## **6. CONCLUSION**

After reviewing the current status of OC coho salmon, the environmental baseline for the action areas, the effects of the proposed bank stabilization action and the cumulative effects, NMFS has determined that the Lloyd Property Bank Stabilization Project, as proposed, is not likely to jeopardize the continued existence of the OC coho salmon, and is not likely to destroy or adversely modify designated critical habitat. This finding is based, in part, on incorporation of best management practices (BMPs) into the proposed project design.

## **7. CONSERVATION RECOMMENDATIONS**

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are *discretionary* measures suggested to minimize or avoid adverse effects of a proposed action on listed species, to minimize or avoid adverse modification of critical habitat, or to develop additional information.

The NMFS recommends that: (1) Every effort be made to retain existing trees found along the edge of bank, (2) conifer species be considered in tree plantings, and (3) plantings be conducted in consultation with a botanist experienced in streambank restoration. Achievement of planting success is highly dependent upon the methodology employed during planting. Prior to commencing construction, the development of a planting plan is suggested. Such a plan, developed in corporation with a botanist experienced in planting within riprap, would greatly increase the likelihood of achieving the required 80 percent survival. Furthermore, it is anticipated that irrigation of plantings during the initial dry season may be necessary.

## **8. REINITIATION OF CONSULTATION**

This concludes formal consultation on these actions in accordance with 50 CFR 402.14(b)(1). Reinitiation of consultation is required: (1) If the action is modified in a way that causes an effect on the

listed species that was not previously considered in the biological assessment and this Opinion; (2) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered; or (3) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16).

## 9. ESA CONSULTATION REFERENCES

Section 7(a)(2) of the ESA requires biological opinions to be based on the best scientific and commercial data available. This section identifies the data used in developing this Opinion.

Nickelson, T.E., J.W. Nicholas, A.M. McGie, R.B. Lindsay, D.L. Bottom, R.J. Kaiser, and S.E. Jacobs. 1992. Status of anadromous salmonids in Oregon coastal basins. Oregon Department of Fish and Wildlife, Research Development Section and Ocean Salmon Management, 83 p. Oregon Department of Fish and Wildlife, P.O. Box 59, Portland.

Oregon Department of Environmental Quality (ODEQ). 2000. Oregon's Final 1998 Water Quality Limited Streams - 303(d) List. <<http://waterquality.deq.state.or.us/WQLData/RecordID98.asp?recordidreq=2972>>. Accessed on June 26, 2000.

Peters, Roger J., Brian R. Missildine, and David L. Low. 1998. Seasonal fish densities near river banks stabilized with various stabilization methods. U.S. Fish and Wildlife Service, Lacey, Washington. 32p.

Spence, B.C., G.A. Lomnický, R.M. Hughes, and R.P. Novitzki. 1996. An ecosystem approach to salmonid conservation. TR-4501-96-6057. ManTech Environmental Research Services Corp., Corvallis, Oregon. (Available from the National Marine Fisheries Service, Portland, Oregon). 356 p.

United States Army Corps of Engineers (COE). 1977. Nehalem Wetlands Review: A Comprehensive Assessment of the Nehalem Bay and River (Oregon). U.S. Army Engineer District, Portland, Oregon.

Weitkamp, L.A., T.C. Wainwright, G.J. Bryant, G.B. Milner, D.J. Teel, R.G. Kope, and R.S. Waples. 1995. Status review of coho salmon from Washington, Oregon, and California. National Marine Fisheries Service, Northwest Fisheries Science Center, Seattle, Washington.

Western Regional Climate Center (WRCC). 2000. Cloverdale, Oregon (351682): Monthly Total Precipitation. URL <<http://www.wrcc.dri.edu/cgi-bin/cliMONTpre.pl?orclov>>. Accessed June 26, 2000.

Casillas, E., L. Crockett, Y. deReynier, J. Glock, M. Helvey, B. Meyer, C. Schmitt, M. Yoklavich, A. Bailey, B. Chao, B. Johnson and T. Pepperell. 1988. *Essential Fish Habitat West Coast Groundfish Appendix*. National Marine Fisheries Service. Montlake, Washington. 778 p.

- Dees, L.T. 1961. *Cephalopds: cuttlefish, octopuses, squids*. U.S. Department of the Interior, Bureau of Commercial Fisheries. Fishery Leaflet 524. 10 p.
- Emmett, R.L., S.L. Stone, S.A. Hinton, and M.E. Monaco. 1991. *Distribution and abundance of fishes and invertebrates in west coast estuaries, Volume II: species life history summaries*. ELMR Report No. 8. NOAA/NOS Strategic Environmental Assessments Division, Rockville, MD. 329 p.
- Eschmeyer, W.N., E. S. Herald, and H. Hamman. 1983. *A field guide to Pacific coast fishes of North America*. Houghton Mifflin Company. Boston, Mass. 336 p.
- Fields, W.G. 1965. *The structure, development, food relations, reproduction and life history of the squid (Loligo opalescens Berry)*. California Department of Fish and Game. Fish Bulletin 131. 108 p.
- Gotshall, D. W. 1977. *Fishwatchers' guide to the inshore fishes of the Pacific coast*. Sea Challengers. Monterey, California. 108 p.
- Hart, J. L. 1973. Pacific fishes of Canada. *Fisheries Research Board of Canada*. Bulletin 180. 740 p.
- Healey, M.C. 1991. *Life history of chinook salmon (Oncorhynchus tshawytscha)*. Pages 311-393 In: Groot, C. and L. Margolis (eds.). 1991. Pacific salmon life histories. Vancouver, British Columbia: University of British Columbia Press.
- Miller, D.J. and R. N. Lea. 1972. *Guide to the coastal marine fishes of California*. California Department of Fish and Game. Fish Bulletin Number 157. 249 p.
- Monaco, M.E., D.M. Nelson, R.L. Emmett, and S.A. Hinton. 1990. *Distribution and Abundance of fishes and invertebrates in west coast estuaries, Volume 1, Data summaries*. ELMR Report No. 4. Strategic assessment Branch, NOS/NOAA. Rockville, MD. 240 p.
- PFMC (Pacific Fishery Management Council), 1998a. *Final Environmental Assessment/Regulatory Review for Amendment 11 to the Pacific Coast Groundfish Fishery Management Plan*. October 1998.
- PFMC (Pacific Fishery Management Council), 1998b. *The Coastal Pelagic Species Fishery Management Plan: Amendment 8*. December 1998.
- PFMC (Pacific Fishery Management Council). 1999. *Amendment 14 to the Pacific Coast Salmon Plan*. Appendix A: Description and Identification of Essential Fish Habitat, Adverse Impacts and Recommended Conservation Measures for Salmon. Portland, Oregon.
- Phillips, J. B. 1957. *A review of the rockfishes of California*. California Department of Fish and Game. Fish Bulletin 104. 158 p.

- Phillips, J.B. 1964. *Life history studies on ten species of rockfish*. California Department of Fish and Game. Fish Bulletin 126. 70 p.
- Roedel, P.M. 1948. *Common marine fishes of California*. California Department of fish and Game. Fish Bulletin 68. 153 p.
- Roedel, P.M. 1953. *Common ocean fishes of the California coast*. California Department of Fish and Game. Fish Bulletin 91. 184 p.
- Sandercock, F.K. 1991. *Life history of coho salmon (*Oncorhynchus kisutch*)*. Pages 395-445 In: Groot, C. and L. Margolis (eds.). 1991. *Pacific salmon life histories*. Vancouver, British Columbia: University of British Columbia Press.
- Turner C.H. and J. C. Sexsmith. 1967. *Marine baits of California*. California Department of Fish and Game. Sacramento, California. 71 p.
- Walford, L.A. 1931. *Handbook of common commercial and game fishes of California*. California Division of Fish and Game, Bureau of Commercial Fisheries. Fish Bulletin 28. 182 p.

## 10. INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulation pursuant to section 4(d) of the ESA prohibit the take of endangered species and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. Harm is further defined by the NMFS to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, and sheltering. Harass is defined by the NMFS as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of Section 7(b)(4) and Section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the term and conditions of this Incidental Take Statement.

### 10.1. Amount or Extent of Take

The NMFS anticipates that the proposed action covered by this Opinion has more than a negligible likelihood of incidental take of juvenile OC coho salmon resulting in the long term from removal of potential natural rearing habitat due to the use of riprap. Effects of actions such as these are largely unquantifiable in the short term, and are not expected to be measurable as long term effects on the species' population levels. The effects of these activities on population levels are also largely unquantifiable and not expected to be measurable in the long term.

Therefore, even though NMFS expects some low level of incidental take to occur due to the action covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the species itself. In instances such as this, the NMFS designates the expected level of take as unquantifiable. Based on the information provided, NMFS anticipates that an unquantifiable but low level of incidental take could occur as a result of the action covered by this Opinion. Moreover, the small amount of take that may occur is expected to be non-lethal.

## **10.2. Reasonable and Prudent Measures**

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of the above species. Minimizing the amount and extent of take is essential to avoid jeopardy to the listed species.

1. Minimize the likelihood of incidental take from construction activities in or near watercourses by implementing pollution and erosion control measures.
2. Minimize the likelihood of incidental take associated with impacts to riparian and in-stream habitats by avoiding or replacing lost riparian and in-stream functions.
3. Minimize the likelihood of incidental take associated with in-stream work by restricting work to recommended in-water work periods.
4. Monitor the effectiveness of the proposed conservation measures in minimizing incidental take and report to NMFS.

## **10.3. Terms and Conditions**

In order to be exempt from the prohibitions of section 9 of the Act, the Corps must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. To Implement Reasonable and Prudent Measure #1, above, the Corps shall ensure that:
  - a. The Contractor shall develop an adequate, site-specific Erosion and Sediment Control (ESCP) and Pollution Control Plan (PCP), and is responsible for containment and removal of any toxicants released. The PCP shall include the following:
    - i. A site plan and narrative describing the methods of erosion/sediment control to be used to prevent erosion and sediment for contractor's operations related to disposal sites, borrow pits operations, haul roads, equipment storage sites, fueling operations and staging areas.
    - ii. Identify hazardous products or materials to be used. Include how they will be handled, monitored, inventoried, and stored.

- iii. Provide a spill containment and control plan that includes: Notification procedures; specific clean up and disposal instructions for different products; quick response containment and clean up measures which will be available on site; proposed methods for disposal of spilled materials; and employee training for spill containment.
  - b. Temporary erosion and sediment controls shall be used on all exposed slopes during any hiatus in work exceeding seven days.
  - c. Permanently stabilize exposed soil surfaces at finished grade immediately upon completion of disturbance. Permanent stabilization shall include grass seeding and mulching. Jute matting may also be necessary depending on site conditions.
  - d. Material removed during excavation shall only be placed in locations where it cannot enter sensitive aquatic resources. Conservation of topsoil (removal, storage and reuse) shall be employed.
  - e. All equipment shall work from above the bankline and shall not enter below the break in bank or mean high-high water elevation.
  - f. No pollutants of any kind (i.e., petroleum products) shall come in contact with the area below the mean high-high water elevation.
  - g. All equipment shall be fueled and cleaned off-site in an appropriate upland area more than 150 feet from any waterway.
  - h. No *surface* application of fertilizer shall be used within 50 feet of any aquatic resource as part of this permitted action.
  - i. No herbicide use shall occur as part of this permitted action.
2. To implement Reasonable and Prudent Measure #2, above, the Corps shall ensure that:
- a. Disturbed soils shall be seeded (see item “b” in section above).
  - b. Willow brush layering and posts shall be planted within the riprap slope.
  - c. Live willow stakes shall be planted on 18-inch centers from the top of the riprap slope to the top of bank along the entire length of the disturbed bank.
  - d. Native trees shall be planted to replace alders removed as part of this action. A replanting ratio of 1.5:1 shall apply. Plant native trees on 10-foot centers from the top of the streambank to a point approximately 10-feet inland along the entire length of the disturbed bank.

- e. All plantings shall occur prior to April 15, 2002.
3. To implement Reasonable and Prudent Measure #3, above, the Corps shall ensure that:
- a. The applicant shall arrange a meeting between ODFW and the contractor/engineer to discuss project plans and scheduling prior to commencing any work on-site.
  - b. All work shall be completed during the period of July 1 to September 15. No work shall take place outside this period without prior written authorization from the Corps (in consultation with ODFW and NMFS).
  - c. Alteration or disturbance of the stream banks and existing riparian vegetation shall be minimized.
  - d. Rock shall be individually placed in such a manner as to produce an *irregularly* contoured face to provide velocity disruption. No end dumping shall be allowed.
4. To Implement Reasonable and Prudent Measure #4, above, the Corps shall ensure that:
- a. Following the completion of plantings, annually provide NMFS with a report by September 30 describing the success of plantings required under Reasonable and Prudent Measure #2. The report should focus on actions taken to ensure that plantings were done correctly and success at meeting the objective of 80 percent or higher survival rate after three years. The report shall include photo documentation.
  - b. Monitoring reports shall be submitted to:

National Marine Fisheries Service  
Attn: Robert Markle  
525 NE Oregon Street, #500  
Portland, Oregon 97232-2778

Reference: OSB2000-0291
  - c. If a dead, sick or injured Oregon Coast coho salmon is located, immediate notification must be made to Rob Markle, NMFS, telephone: (503) 230-5419, or Chris Knutsen, ODFW, telephone: (503) 842-2741. Care will be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured species or preservation of biological material from a dead animal, the finder has the responsibility to carry out instruction provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

- d. Post-construction access by NMFS and ODFW shall be provided with prior notification to further assess impacts of this activity on fishery resources for a period of 5 years from completion of the action.

## **11. ESSENTIAL FISH HABITAT CONSULTATION**

### **11.1 Background**

In addition to ESA consultation, the Corps requested consultation on the proposed bank stabilization action for Essential Fish Habitat (EFH) under the Magnuson-Stevens Act. The objective of the EFH consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse impacts to EFH resulting from the proposed action. The Corps determined the proposed action may adversely affect EFH for groundfish, coastal pelagic, and Pacific salmon.

### **11.2. Magnuson-Stevens Fishery Conservation and Management Act**

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NMFS on activities that may adversely affect EFH.

EFH means “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity” (MSA §3). The Pacific Fisheries Management Council (Council) has designated EFH for federally-managed groundfish (PFMC 1998a), coastal pelagic (PFMC 1998b), and Pacific salmon (PFMC 1999) fisheries (Table 1).

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NMFS is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

The consultation requirements of section 305(b) of the MSA (16 U.S.C. 1855(b)) provide that:

- Federal agencies must consult with NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NMFS shall provide conservation recommendations for any Federal or State activity that may adversely affect EFH;
- Federal agencies shall within 30 days after receiving conservation recommendations from NMFS provide a detailed response in writing to NMFS regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a



response that is inconsistent with the conservation recommendations of NMFS, the Federal agency shall explain its reasons for not following the recommendations.

### **11.3. Identification of Essential Fish Habitat**

Groundfish and coastal pelagic EFH extend from tidal submerged environments within Washington, Oregon, and California offshore to the exclusive economic zone limit (200 miles) (PFMC 1998a; PFMC 1998b).

A description and identification of EFH for salmon is found in Appendix A of Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). The EFH includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to chinook salmon (*Oncorhynchus tshawytscha*) and coho salmon in Washington, Oregon, Idaho, and California, except above the impassable barriers identified by the Council (PFMC 1999). Chief Joseph Dam, Dworshak Dam, and the Hells Canyon Complex (Hells Canyon, Oxbow, and Brownlee Dams) are among the listed man-made barriers that represent the upstream extent of the Pacific salmon fishery EFH. Salmon EFH excludes areas upstream of longstanding naturally impassable barriers (i.e., natural waterfalls in existence for several hundred years). In the estuarine and marine areas, proposed designated salmon EFH extends from the nearshore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone (200 miles) offshore of Washington, Oregon, and California north of Point Conception to the Canadian border (PFMC 1999).

### **11.4. Proposed Actions**

The proposed action is detailed above in *Section II*. The action area encompasses the area immediately associated with the subject bank stabilization on Pacific City Slough, as well as points downstream and upstream (tidal influence) that may experience increased turbidity or contaminated waters.

### **11.5. Effects of the Proposed Action**

The NMFS concludes that the effects of this project on designated EFH are likely to be within the range of effects considered in the Endangered Species Act portion of this consultation, and concurs with the Corps finding that the proposed Lloyd Property Bank Stabilization Project is likely to adversely affect EFH designated for groundfish, coastal pelagic fish, and Pacific salmon (chinook and coho).

### **11.6. Conclusion**

The NMFS believes that the proposed action may adversely affect designated EFH for the groundfish, coastal pelagic, and Pacific salmon (chinook and coho).

### **11.7. EFH Conservation Recommendations**

The Reasonable and Prudent Measures and the Terms and Conditions outlined above in *Section X* are applicable to designated groundfish, coastal pelagic, and Pacific salmon EFH. Therefore, NMFS

recommends that they be adopted as EFH conservation measures. Should the Corps adopt and implement these recommendations, potential adverse impacts to EFH would be minimized.

#### **11.8. Statutory Requirements**

The MSA and Federal regulation (50 CFR Section 600.920) require Federal action agencies to provide a written response to EFH Conservation Recommendations within 30 days of receipt. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity. If the response is inconsistent with NMFS' conservation recommendations, the reasons for not implementing them must be included.

In the case of the action currently under consultation, the recommendations constitute non-discretionary Terms and Conditions of the Opinion, and as such, the projects may not be carried out without their implementation. Therefore, NMFS assumes the Corps will accept these recommendations and further response by the Corp is not necessary. However, if the Corps does not agree with these recommendations, the Corps must respond and provide an explanation of the reasons for not implementing them.

#### **11.9. Consultation Renewal**

The Corps must reinitiate EFH consultation with NMFS if the action is substantially revised in a way that may adversely affect EFH or new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR 600.920).

Table 1. Species with designated EFH found in waters of the State of Oregon.<sup>1</sup>

<b>Ground Fish Species</b>	Blue rockfish ( <i>S. mystinus</i> )	Rougheye rockfish ( <i>S. aleutianus</i> )	Flathead sole ( <i>Hippoglossoides elassodon</i> )
Leopard shark ( <i>Triakis semifasciata</i> )	Bocaccio ( <i>S. paucispinis</i> )	Sharpchin rockfish ( <i>S. zacentrus</i> )	Pacific sanddab ( <i>Citharichthys sordidus</i> )
Soupfin shark ( <i>Galeorhinus zyopterus</i> )	Brown rockfish ( <i>S. auriculatus</i> )	Shortbelly rockfish ( <i>S. jordani</i> )	Petrale sole ( <i>Eopsetta jordani</i> )
Spiny dogfish ( <i>Squalus acanthias</i> )	Canary rockfish ( <i>S. pinniger</i> )	Shortraker rockfish ( <i>S. borealis</i> )	Rex sole ( <i>Glyptocephalus zachirus</i> )
Big skate ( <i>Raja binoculata</i> )	Chilipepper ( <i>S. goodei</i> )	Silvergray rockfish ( <i>S. brevispinus</i> )	Rock sole ( <i>Lepidopsetta bilineata</i> )
California skate ( <i>R. inornata</i> )	China rockfish ( <i>S. nebulosus</i> )	Speckled rockfish ( <i>S. ovalis</i> )	Sand sole ( <i>Psettichthys melanostictus</i> )
Longnose skate ( <i>R. rhina</i> )	Copper rockfish ( <i>S. caurinus</i> )	Splitnose rockfish ( <i>S. diploproa</i> )	Starry flounder ( <i>Platyichthys stellatus</i> )
Ratfish ( <i>Hydrolagus colliei</i> )	Darkblotched rockfish ( <i>S. crameri</i> )	Stripetail rockfish ( <i>S. saxicola</i> )	
Pacific rattail ( <i>Coryphaenoides acrolepis</i> )	Grass rockfish ( <i>S. rastrelliger</i> )	Tiger rockfish ( <i>S. nigrocinctus</i> )	<b>Coastal Pelagic Species</b>
Lingcod ( <i>Ophiodon elongatus</i> )	Greenspotted rockfish ( <i>S. chlorostictus</i> )	Vermillion rockfish ( <i>S. miniatus</i> )	Northern anchovy ( <i>Engraulis mordax</i> )
Cabezon ( <i>Scorpaenichthys marmoratus</i> )	Greenstriped rockfish ( <i>S. elongatus</i> )	Widow Rockfish ( <i>S. entomelas</i> )	Pacific sardine ( <i>Sardinops sagax</i> )
Kelp greenling ( <i>Hexagrammos decagrammus</i> )	Longspine thornyhead ( <i>Sebastolobus altivelis</i> )	Yelloweye rockfish ( <i>S. ruberrimus</i> )	Pacific mackerel ( <i>Scomber japonicus</i> )
Pacific cod ( <i>Gadus macrocephalus</i> )	Shortspine thornyhead ( <i>Sebastolobus alascanus</i> )	Yellowmouth rockfish ( <i>S. reedi</i> )	Jack mackerel ( <i>Trachurus symmetricus</i> )
Pacific whiting (Hake) ( <i>Merluccius productus</i> )	Pacific Ocean perch ( <i>S. alutus</i> )	Yellowtail rockfish ( <i>S. flavidus</i> )	Market squid ( <i>Loligo opalescens</i> )
Sablefish ( <i>Anoplopoma fimbria</i> )	Quillback rockfish ( <i>S. maliger</i> )	Arrowtooth flounder ( <i>Atheresthes stomias</i> )	
Aurora rockfish ( <i>Sebastes aurora</i> )	Redbanded rockfish ( <i>S. babcocki</i> )	Butter sole ( <i>Isopsetta isolepsis</i> )	<b>Salmon</b>
Bank Rockfish ( <i>S. rufus</i> )	Redstripe rockfish ( <i>S. proriger</i> )	Curlfin sole ( <i>Pleuronichthys decurrens</i> )	Coho salmon ( <i>O. kisutch</i> )
Black rockfish ( <i>S. melanops</i> )	Rosethorn rockfish ( <i>S. helvomaculatus</i> )	Dover sole ( <i>Microstomus pacificus</i> )	Chinook salmon ( <i>O. tshawytscha</i> )
Blackgill rockfish ( <i>S. melanostomus</i> )	Rosy rockfish ( <i>S. rosaceus</i> )	English sole ( <i>Parophrys vetulus</i> )	

<sup>1</sup> From Casillas *et al* 1998, Dees 1961, Emmett *et al.* 1991, Eschmeyer *et al.* 1983, Fields 1965, Gotshall 1977, Hart 1973, Healey 1991, Miller and Lea 1972, Monaco *et al.* 1990, Phillips 1957, Phillips 1964, Roedel 1948, Roedel 1953, Sandercock 1991, Turner and Sexsmith 1967, and Walford 1931.